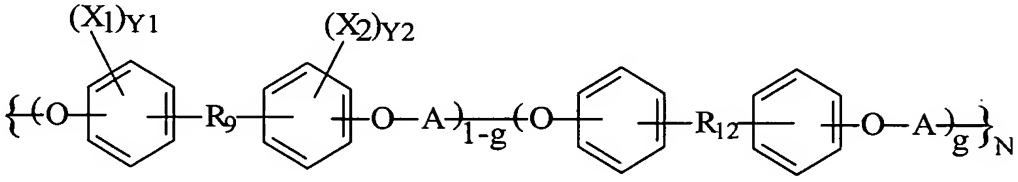
CLAIMS

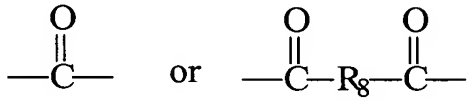
What is claimed is:

1. An implantable, radio-opaque medical device comprising a radio-opaque, iodine- or bromine-substituted polymer described by the formula VIII:



(VIII)

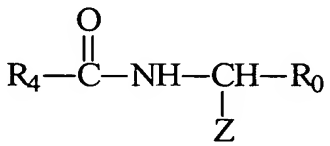
wherein X_1 and X_2 are independently I or Br; Y1 and Y2 are independently 0,1, or 2; R_9 and R_{12} are independently an alkyl, aryl, or alkylaryl group containing up to 18 carbon atoms; A is:



wherein R_8 is selected from the group consisting of saturated and unsaturated, substituted and unsubstituted alkyl, aryl, and alkylaryl groups containing up to 18 carbon atoms; R_8, R_9, or R_{12} is optionally bromine- or iodine-substituted; and g is between 0 and 0.99, inclusive.

2. The implantable, radio-opaque medical device of claim 1 wherein g is zero.

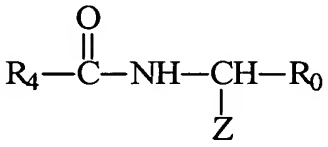
3. The implantable, radio-opaque medical device of claim 1 wherein R_9 has the structure:



wherein R_0 is selected from the group consisting of -CH=CH-, $-CHJ_1-CHJ_2-$, and $(-CH_2-)_m$, R_4 is

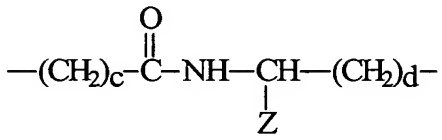
selected from the group consisting of -CH=CH-, $-CHJ_1-CHJ_2-$, and $(-CH_2-)_a$, wherein m and a are independently between 0 and 8, inclusive; J_1 and J_2 are independently Br or I; and Z is selected from the group consisting of hydrogen, a free carboxylic acid group, and carboxylic acid esters and amides, wherein said ester and amides are selected from the group consisting of esters and amides of straight and branched alkyl and alkyaryl groups containing up to 18 carbon atoms and esters and amides of biologically and pharmaceutically active compounds.

4. The implantable, radio-opaque medical device of claim 3 wherein g is greater than zero and R_{12} has the structure:

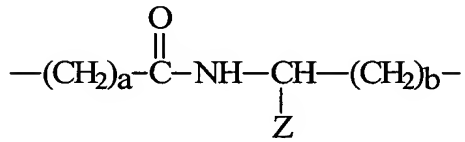


wherein R_0 is selected from the group consisting of -CH=CH-, $-CHJ_1-CHJ_2-$, and $(-CH_2-)_m$, R_4 is selected from the group consisting of -CH=CH-, $-CHJ_1-CHJ_2-$, and $(-CH_2-)_a$, wherein m and a are independently between 0 and 8, inclusive; J_1 and J_2 are independently Br or I; and Z is selected from the group consisting of hydrogen, a free carboxylic acid group, and carboxylic acid esters and amides, wherein said ester and amides are selected from the group consisting of esters and amides of straight and branched alkyl and alkyaryl groups containing up to 18 carbon atoms and esters and amides of biologically and pharmaceutically active compounds.

5. The implantable, radio-opaque medical device of claim 4 wherein R_9 has the structure:



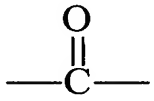
and R_{12} has the structure:



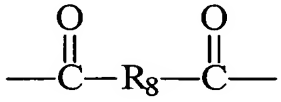
wherein a and c are two and b and d are one.

6. The implantable, radio-opaque medical device of claim 4 wherein each Z of R_9 and R_{12} is an ester of a carboxylic acid; wherein each ester group is independently selected from the group consisting of ethyl, butyl, hexyl, octyl, and benzyl groups.

7. The implantable, radio-opaque medical device of claim 1 wherein A is:



8. The implantable, rado-opaque medical device of claim 1 wherein A is:



9. The implantable, radio-opaque medical device of claim 8 wherein R_8 is selected from the group consisting of saturated and unsaturated, substituted and unsubstituted alkyl groups containing up to 8 carbon atoms.

10. The implantable, radio-opaque medical device of claim 9 wherein R_8 is selected from the group consisting of $-CH_2-C(=O)-$, $-CH_2CH_2-C(=O)-$, $-CH=CH-$, and $(-CH_2-)_Q$, wherein Q is between 0 and 8, inclusive.

11. The implantable, radio-opaque medical device of claim 8 wherein R_8 is selected from the group consisting of saturated and unsaturated, substituted and unsubstituted aryl and alkyaryl groups containing from 13 to 20 carbon atoms.

12. The implantable, radio-opaque medical device of claim 8 wherein Y_1+Y_2 is greater than zero.

13. The implantable, radio-opaque medical device of claim 1 wherein said polymer further comprises one or more poly(alkylene oxide) blocks.

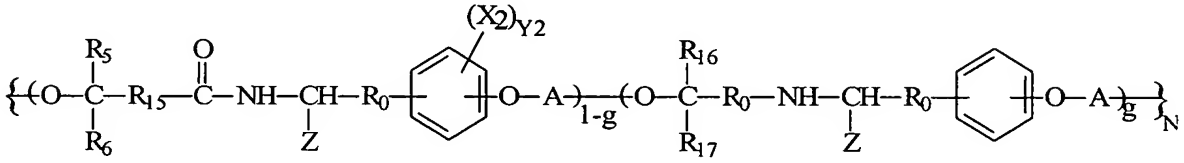
14. The implantable, radio-opaque medical device of claim 1 wherein said medical device is formed from said polymer.

15. The implantable, radio-opaque medical device of claim 1 wherein said medical device is coated with said polymer.

16. The implantable, radio-opaque medical device of 1 wherein said device comprises a radio-opaque, biocompatible stent comprising said polymer.

17. The implantable, radio-opaque medical device of claim 14 wherein said device is a radio-opaque, biocompatible stent.

18. An implantable, radio-opaque medical device comprising a radio-opaque, iodine- or bromine-substituted polymer described by the formula VIIIa:



(VIIIa)

wherein:

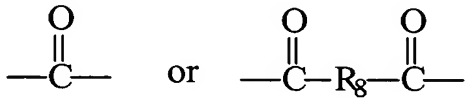
(a) R_5, R_6, R_{16}, and R_{17} are each independently selected from the group consisting of H, Br, I and straight and branched alkyl groups having up to 18 carbon atoms; provided that when g is zero, R_5 and R_6 are independently Br or I unless R_{15} is $-CJ_1-CJ_2-$;

(b) R_{15} is selected from the group consisting of $(-CH_2-)_c$, -CH=CH-, and $-CJ_1-CJ_2-$, wherein $-J_1$ and J_2 are indepedently Br or I and c is between 0 and 8, inclusive;

(c) X_2 is Br or I, and Y2 is 0, 1 or 2;

(d) Z is selected from the group consisting of hydrogen, a free carboxylic acid group or an ester or amide thereof;

(e) A is:



wherein R_8 is selected from the group consisting of saturated and unsaturated, substituted and unsubstituted alkyl, aryl, and alkylaryl groups containing up to 18 carbon atoms;

(f) each R_0 is independently -CH=CH- or $(-CH_2-)_d$, wherein d is between 0 and 8 inclusive; and

(g) g ranges from zero to less than one.

19. The implantable, radio-opaque medical device of claim 18 wherein R_0 or R_{15} are $(-CH_2-)_d$ or $(-CH_2-)_c$, respectively, wherein c or d are 0, and R_5, R_6, R_{16}, and R_{17} are independently hydrogen or a methyl group.

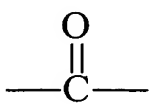
20. The implantable, radio-opaque medical device of claim 19 wherein R_5, R_6, R_{16}, and R_{17} are all hydrogen.

21. The implantable, radio-opaque medical device of claim 19 wherein one of R_5 and R_6 or R_{16} and R_{17} is hydrogen and the others are methyl.

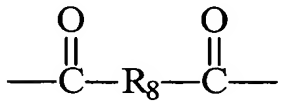
22. The implantable, radio-opaque medical device of claim 18 wherein each Z is an ester of a carboxylic acid, wherein each ester group is independently selected from the group consisting of ethyl, butyl, hexyl, octyl, and benzyl groups.

23. The implantable, radio-opaque medical device of claim 22 wherein both R_0 and R_{15} are $(-CH_2-)$ and each Z is an ethyl ester of a carboxylic acid.

24. The The implantable, radio-opaque medical device of claim 16 wherein A is:



25. The implantable, radio-opaque medical device of claim 18 wherein A is:



26. The implantable, radio-opaque medical device of claim 25 wherein R_8 is selected from the group consisting of saturated and unsaturated, substituted and unsubstituted alkyl groups containing up to 8 carbon atoms.

27. The implantable, radio-opaque medical device of claim 26 wherein R_8 is selected from the group consisting of $-CH_2-C(=O)-$, $-CH_2CH_2-C(=O)-$, -CH=CH-, and $(-CH_2-)_Q$, wherein Q is between 0 and 8, inclusive.

28. The implantable, radio-opaque medical device of claim 25 wherein R_8 is selected from the group consisting of saturated and unsaturated, substituted and unsubstituted aryl and alkyaryl groups containing from 13 to 20 carbon atoms.

29. The implantable, radio-opaque medical device of claim 18 wherein said polymer further comprises one or more poly(alkylene oxide) blocks.

30. The implantable, radio-opaque medical device of claim 18 wherein Y_2 is 1 or 2.

31. The implantable, radio-opaque medical device of claim 18 wherein said medical device is formed from said polymer.

32. The implantable, radio-opaque medical device of claim 18 wherein said medical device is coated with said polymer.

33. The implantable, radio-opaque medical device of claim 18 wherein said device comprises a stent comprising said polymer.

34. The implantable, radio-opaque medical device of claim 31 wherein said device is a stent.

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